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ABSTRACT

This study was undertaken to determine whether external locus of control orientation was significantly negatively correlated with levels of creativity. Subjects were 13 male and 13 female undergraduate students enrolled in psychology classes at a southwestern university. Mean age of the subjects was 28.6. Instruments used were Levenson's (1972) I (Internality), P (Powerful Others), and C (Chance) Scales and the Creative Personality Scale of Gough's (1952) Adjective Check List. Results showed the hypothesized negative correlations between externality (indicated by Powerful Others and Chance scores on the I, P, and C Scales) and creativity levels. Also, t-tests showed a significant difference between genders on Powerful Others scores, and also on Chance scores. No difference between genders was found on Creative Personality scores. Findings confirmed that external locus of control orientation was negatively related to creativity. References are included. (Author/TE)

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COMPARISON OF LOCUS OF CONTROL WITH LEVELS OF CREATIVITY

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(Abstract)

COMPARISON OF LOCUS OF CONTROL WITH LEVELS OF CREATIVITY

by Karen B. Kneipp and Bernadette M. Gadzella

The purpose of this study was to determine whether external locus of control orientation was significantly negatively correlated with levels of creativity. Subjects were 26 undergraduate students in psychology classes at a southwestern university. There were 13 male and 13 female subjects, with a mean age of 28.6. Instruments used were Levenson's (1972) I, P, and C Scales and the Creative Personality Scale of Gough's (1952) Adjective Check List.

Results showed the hypothesized negative correlations between externality (indicated by Powerful Others and Chance scores on the I, P, and C Scales) and creativity levels. Also, *t*-tests were conducted which showed a significant difference between genders on Powerful Others scores, and also on Chance scores. No difference between genders was found on Creative Personality scores. The conclusion of this study was that external locus of control orientation is negatively related to creativity.

COMPARISON OF LOCUS OF CONTROL WITH LEVELS OF CREATIVITY

Introduction

Throughout human history there have appeared great thinkers: philosophers, theologians, inventors, artists, musicians, scientists, and writers. Despite individual differences in location (geographic and temporal), gender, sphere of influence, and temperament, these outstanding people seem to possess one common element of personality--the capacity for innovative, unusual, or original ideas. Because the contributions of such people have so often changed the course of history and human lives, the source of their special talents and abilities have long been the subject of much speculation.

Even those who are members of this elite group have often wondered about the basis of their remarkable notions. Plato, who was himself the originator of many novel concepts which have endured for centuries, wrote:

> For the poets tell us, don't they, that the melodies they bring us are gathered from rills that run with honey, out of glens and gardens of the Muses, and they bring them as the bees do honey, flying like the bees? And what they say is true, for a poet is a light and winged thing, and holy, and never able to compose until he has become inspired, and is beside himself and reason is no longer in him . . . for not by art do they utter these, but by power divine (Cooper, 1961, p. 58).

In recent years, with the development of psychology as a science, researchers have sought a less mysterious explanation for the origin and processes of creativity.

Attempts to isolate a single personality trait responsible for creative inspiration have been unsuccessful. Instead, it now appears that a combination of factors may be responsible for the creative process. In a society which is increasingly preoccupied with matters of equal opportunity and education for all, the questions are often raised: "What social and environmental factors influence creative thinking? How can we encourage the development of creative personalities in our schools, homes, and businesses?" The focus has broadened to include everyday sorts of creativity, rather than the previous emphasis on those who may be called creative geniuses (Barron, 1969).

One of the most often used phrases in the description of creative personality is "independent thinking," or similar words to this effect, such as "unconventionalism" (MacKinnon, 1962), "divergent thinking" (Guilford, 1967), and "independence of judgment" (Barron & Harrington, 1981). Robert Sternberg's work on implicit theories of creativity indicates that most people associate creativeness with "nonentrenchment, or the ability and willingness . . . to think and act in unconventional . . . ways" (Sternberg, 1985, p. 622). Since similar terms are also used to

describe those persons exhibiting internality in locus of control orientation, it has been suggested that the production and development of original concepts may be suppressed by a tendency to judge one's own ideas by conventional or others' standards, rather than by a willingness to accept and develop any unusual approach that may eventually prove useful (Strickland, 1989).

Because of this emphasis on independence of thinking in the literature on creativity research, it appears that any approach to predicting creative achievement should include an assessment of the subject's traits in this area of personality. Several instruments for measurement of locus of control, the "generalized expectancy to perceive reinforcement either as contingent upon one's own behaviors . . . or as the result of forces beyond one's control" (Levenson, 1981), have been developed. These tests have been used extensively as adjuncts to therapy and as diagnostic aids, because of the reliability and consistency of research findings on perceived control and its influence on personality factors.

Rationale and Purpose

In observing the reactions of people to the presentation of innovative ideas, whether in the classroom, in business situations, or in the personal arena, one often hears remarks such as, "I thought of that, but I was afraid

everybody would think that was stupid!" Other frequent statements are, "I don't have any imagination" and "I'm just not a creative person."

Even to the casual observer, individuals who habitually make such comments seem to share a lack of self-confidence in their own ability to create. Consequently, it appears that the ability to judge accurately the value of their own ideas may be lacking, leading to their failure to explore novel avenues of thought.

The locus of control construct is one measure of an individual's confidence in self--her perceived control of the rewards in life. The purpose of this study was to investigate the relationship of locus of control to levels of creativity. It was hypothesized that significant negative correlations would be shown between external locus of control (indicated by Powerful Others and Chance scores on the I, P, and C Scales) and a low level of creativity (indicated by Creative Personality scores on the Adjective Check List).

Review of the Literature

A number of studies on creativity and problem-solving skills have shown that personality characteristics such as independence and self-confidence are generally displayed by innovative persons (Barron, 1969). Herbert Lefcourt stated, "Unique and innovative minds grow among those who can come

to perceive differences between others and themselves, and who continue to hold the assumption that they are free agents, the makers of their own fates" (Lefcourt, 1982, p. 2). Therefore, it appears that qualities such as independence and autonomy are desirable, and to be encouraged.

In the interest of fostering development of creativity and internal locus of control orientation, Philip Churchill (1976) conducted a study of junior high school students in which he postulated that intervention measures which strengthened creativity and decision-making skills would also result in gains in internality. This project used creativity training, values clarification exercises, and decision-making practice, and then compared the pre-test and post-test scores of the experimental group (which received the special training sessions) and the control group (which received no training). The results confirmed his hypothesis: the experimental group showed significant gains in creativity and in internality, as compared to the control group which showed no such gains.

Researchers John Houtz and Joan Coll (1979) found a significant interaction between locus of control orientation and fluency of ideas. They correctly predicted that college students with internal locus of control would have difficulty generating ideas when instructed to think of

ideas that others also would be likely to generate, since internals' primary source of evaluation for their ideas is themselves, not others. Conversely, externals had difficulty generating concepts that others would not think of when they were instructed to do so, since externals use others, not themselves, as their primary source of idea evaluation. However, Bolen and Torrance (1976) found that externals were more successful than internals in production of original ideas when they were paired with other students and cooperation was introduced as a variable.

Another theory of personality factors leading to creativity was espoused by William Earl (1987) in his field study of creativity and self-trust. He postulated that in order for risks to be taken that might lead to new and original solutions, a certain level of self-trust is necessary, with self-trust defined as "faith (belief plus action) in one's ability to fulfill a perceived task" (Earl, 1987, p. 421). The results of his study supported his hypothesis, showing a significant positive correlation (r = .30) between self-trust and creativity. In his discussion of the project, Earl remarked that unwillingness to give up in the face of apparent failure is a persistent trait of creative persons, leading him to conclude that self-trust is the personality trait which attracts creative

people to a project and enables them to stay with it until they have achieved some sense of success.

Because Levenson's locus of control test (the I, P, and C Scales) was not designed to label subjects as "internal" or "external", but rather, to differentiate between the relative influence of internality, powerful others, and chance on one's life (Levenson, 1981), the present study did not attempt to identify subjects as internally- or externally-oriented. Instead, in keeping with the above-cited research findings, the hypothesis of the present study was that significant negative correlations would be found between scores on the Powerful Others and Chance scales of the I, P, and C Scales and scores on the Creative Personality scale of the Adjective Check List. It was not hypothesized that scores on the Internality Scale would be significantly correlated with Creative Personality scores in either a positive or negative direction, due to Levenson's (1981) findings of consistently high scores on Internality in Western societies, due to societal beliefs in personal efficacy.

Method

Subjects

A total of 26 subjects volunteered to participate in the experiment. There were 13 male and 13 female subjects. Their age range was 21 to 47 years, with the mean age being 28.6 years. All subjects were students enrolled in undergraduate psychology classes at East Texas State University. They were given extra credit by their instructor for participating in the experiment.

Materials

The I, P, and C Scales, a locus of control measurement instrument developed by Hanna Levenson (1972), was administered to all subjects. The I, P, and C Scales was originally designed as a reconceptualization of Rotter's I-E Scale. The three attributes measured by the I, P, and C Scales are amount of belief in the influence of internality, powerful others, and chance on events in one's life. The instrument is a 24-item, self-report, paper-pencil test which offers subjects six choices of the extent of their agreement with each of the 24 statements regarding their own attitudes, ranging from "Strongly disagree" to "Strongly agree." The specific content areas covered in the 24 items are counterbalanced so as to appear equally often for each of the three dimensions of the test, and items are presented as one unified attitude scale. Scoring is accomplished by

adding the points of the chosen answers for each item appropriate for the scale being scored, with a constant value of +24 added to all three scales to eliminate any negative scores. It is empirically feasible for a subject to receive the same score on all three scales, or a high score or low score on all three scales, but the literature indicates that rarely is such a profile obtained. A high score on any subscale is interpreted as an indication of high expectations of control by that source (Internal, Powerful Others, or Chance), while a low score indicates a tendency not to believe in control by that particular source (Levenson, 1981).

The Adjective Check List (ACL) developed by Harrison Gough (1952) was also administered to each subject. It consists of a list of 300 adjectives, including approximately 125 which were drawn from Cattell's (1946) compilation of 171 trait-descriptive terms which he considered to be effective specifiers of the personality as a whole. Other adjectives that appeared valuable in personality description were added after the author's review of the theories of Jung, Freud, Murray, and Mead, and his consideration of a 1953 study of complexity-simplicity by Barron. The Adjective Check List remains in the same form as it was originally published in 1952 (Gough & Heilbrun, 1983).

Since its first publication, 37 separate scales have been developed for the ACL in order to provide statistically significant differentiations between subjects on such constructs as Achievement, Self-Control, Personal Adjustment, and Counseling Readiness. Some of the scales were developed empirically via the correlation of items on the test with external criteria of the same construct, while other scales were developed from a rational standpoint, by clustering adjectives according to the psychological meaning inferred. The Creative Personality Scale was developed by the empirical item/criterion correlation procedure, using psychology graduate students, engineering students, mathematicians, architects, and other adults in the development samples (Gough, 1979). All subjects are first scored on the Number Checked Scale, which classifies each subject into one of five normative categories for his/her gender. Then the 18 items which count positively for the attribute of a "creative personality" are scored, and the 12 items which count negatively are subtracted from the positive CPS score, yielding a raw score which is converted to a standard score by use of gender and the category indicated by the Number Checked score. This procedure has been shown to eliminate much of the variability in scores due to verbosity or taciturnity in individual subjects (Gough & Heilbrun, 1983).

Procedure

Students in two undergraduate experimental psychology lab sections were invited to participate in the study by taking the Adjective Check List and the I, P, and C Scales during their regularly-scheduled class periods. It was explained that their identities would remain anonymous, since they were asked to use made-up code names on both tests. Consent forms which explained the nature of the testing instruments were completed by all subjects. All class members in both sections agreed to participate in the study. The administration instructions for both tests were read aloud, with printed instructions also accompanying the ACL.

After completing the tests, students scored their own test protocols via instructions from the researcher, who elaborated on the aims of the study and discussed the characteristics associated with each construct being tested. Subjects were encouraged to talk with the researcher on an individual basis if more information about their own test results was desired. Individual test scores were not discussed or presented to the class. Subjects turned in their coded protocols to the researcher, who checked their scoring for accuracy on each instrument. At the conclusion of the study, the researcher returned to the class sections to present the results obtained on the group data.

Results

The hypothesis of this study was that significant negative correlations would be found between scores on the Powerful Others scale of the I, P, and C Scales, scores on the Chance scale of the I, P, and C Scales, and scores on the Creative Personality scale of the Adjective Check List.

The I, P, and C Scales is a locus of control instrument which provided scores on the following three variables: 1) internal influence; 2) influence of powerful others; and 3) influence of chance; on the thought processes/cognitive decisions of subjects. The creativity variable was obtained from the Creative Personality scale of the Adjective Check List. Pearson-product-moment correlations were used to analyze the relationship between each of the three variables on the I, P, and C Scales with the creativity variable. The correlation coefficient and the degree of probability for each variable are presented in Table 1. The results of this analysis support the stated research hypothesis that the variables of Powerful Others and Chance would each be negatively correlated with the variable of Creative Personality (see Table 1).

Table 1 - Pearson-Product-Moment Correlations Between Three Variables and Creative Personality Scores

Variable (N = 26)	Mean	Standard Deviation	Correlation with CPS	Probability of Occurrence
Internality	38.96	5.58	0.17	0.398
Powerful Others	16.76	8.02	-0.53	0.005 *
Chance	14.53	8.88	-0.42	0.032 *

* Denotes statistical significance ($p < .05$).

In examining Table 1, one notes that the Powerful Others variable is negatively correlated ($r = -0.53$) with Creative Personality. This correlation is statistically significant ($p < .05$). The Chance variable is also negatively associated ($r = -0.42$) with Creative Personality, and this amount of association is also statistically significant ($p < .05$). The Internality variable was positively correlated ($r = 0.17$) with Creative Personality, but this amount of correlation was not statistically significant ($p > .05$). The mean score for all 26 subjects on the Creative Personality variable was 52.76.

A t-test was calculated to determine the mean difference between genders on each of the four variables. The t-tests were computed in order to determine the relative effect that gender may have had as a situational variable.

This analysis revealed that there was a significant difference between males and females on the variable of Powerful Others, t = 2.06, p < .05 (see Table 2).

Table 2 - Analysis of Powerful Others Scores by Gender

Gender	No. in Group	Mean	Standard Deviation	t-Value	Pr. > t
Female	13	20.15	9.13	2.06	0.049
Male	13	13.15	8.12		

The t-test analysis also showed that there was a significant difference between males and females on the variable of Chance, t = 2.41, p < .05 (see Table 3).

Table 3 - Analysis of Chance Scores by Gender

Gender	No. in Group	Mean	Standard Deviation	t-Value	Pr. > t
Female	13	18.38	8.50	2.41	0.023
Male	13	10.69	7.75		

The analysis indicated that there was not a significant difference between males and females on the variable of Internality, t = -1.09, p > .05 (see Table 4).

Table 4 - Analysis of Internality Scores by Gender

Gender	No. in Group	Mean	Standard Deviation	*t*-Value	Pr. > *t*
Female	13	37.76	6.07	-1.09	0.285
Male	13	40.15	4.99		

There was also no significant difference between males and females on the variable of Creative Personality, $t = -1.07$, $p > .05$ (see Table 5).

Table 5 - Analysis of Creative Personality Scores by Gender

Gender	No. in Group	Mean	Standard Deviation	*t*-Value	Pr. > *t*
Female	13	51.07	6.60	-1.07	0.291
Male	13	54.46	9.18		

Discussion

The present study attempted to show that there is a statistically significant negative correlation between scores on the Powerful Others scale of the I, P, and C Scales (an instrument which tests locus of control), and scores on the Creative Personality scale of the Adjective Check List. It also attempted to show a significant negative correlation between Chance scale scores on the I, P, and C Scales and Creative Personality scale scores. The findings supported both parts of the research hypothesis. These results support earlier findings by Churchill (1976), Houtz and Coll (1979), and Earl (1987).

Creative individuals appear to trust primarily their own judgment when evaluating original ideas for further development, while less creative persons seem to produce less original thoughts and concepts because in judging their ideas, they not only use their own standards, but also what they perceive to be the standards of powerful others, thereby rejecting many original notions that might be useful. Further study of this area of personality is needed to explore methods of encouraging creativity through use of personal standards only, in individuals with high belief in the influence of powerful others or chance.

The present study did not show a significant difference between females and males on the Creative Personality

variable or the Internality variable, but significant differences did exist on the Powerful Others and Chance variables. These results are in contrast to findings by Bolen and Torrance (1976) that males were significantly more flexible than females in creative functioning, and that there were no significant differences between the sexes on internal, mixed, or external locus of control. The present results support research by Goldsmith and Matherly (1987), who found no differences between the sexes on three self-report measures of creativity. Further study is suggested to explore the differences between females and males on locus of control orientation and the effects of such differences on levels of creativity.

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